Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

Please cancel claims 29 and 40 without prejudice.

Please amend claims 4, 26, 28, 41 and 46 as indicated below (material to be inserted is in **bold and underline**, material to be deleted is in ~~strikeout~~ or (if the deletion is of five or fewer consecutive characters or would be difficult to see) in double brackets [[ ]]):

Listing of Claims:

1. (Original) A thin-film transistor, comprising:

a source electrode;

a drain electrode;

a gate electrode;

a deposited thin-film channel region having a portion doped with an impurity to change the fixed charge density within the portion relative to a remainder of the channel region and disposed between the source and drain electrode; and

a dielectric material electrically separating the gate electrode from the channel region.

2. (Original) The thin-film transistor of claim 1, where the portion of the channel region is disposed between the remainder of the channel region and the dielectric material.

3. (Original) The thin-film transistor of claim 1, where the dielectric material includes silicon dioxide.

4. (Currently Amended) ~~The thin-film transistor of claim 1,~~ **A thin-film transistor, comprising:**

a source electrode;

a drain electrode;

a gate electrode;

a deposited thin-film channel region having a portion doped with an impurity to change the fixed charge density within the portion relative to a remainder of the channel region and disposed between the source and drain electrode, where the channel region is a deposited layer fabricated from a binary oxide semiconductor material**; and**

a dielectric material electrically separating the gate electrode from the channel region.

5. (Original) The thin-film transistor of claim 4, where the channel region is fabricated from zinc oxide.

6. (Original) The thin-film transistor of claim 4, where the impurity is a donor-type impurity which increases the positive fixed charge density within the portion of the channel region.

7. (Original) The thin-film transistor of claim 4, where the impurity is an acceptor-type impurity which increases the negative fixed charge density within the portion of the channel region.

8. (Original) The thin-film transistor of claim 5, where the impurity is a donor-type impurity which increases the positive fixed charge density within the portion of the channel region.

9. (Original) The thin-film transistor of claim 8, where the donor-type impurity is selected from the group consisting of aluminum, boron, gallium, indium, fluorine and chlorine.

10. (Original) The thin-film transistor of claim 8, where the donor-type impurity is aluminum.

11. (Original) The thin-film transistor of claim 5, where the impurity is an acceptor-type impurity which increases the negative fixed charge density within the portion of the channel region.

12. (Original) The thin-film transistor of claim 11, where the acceptor-type impurity is selected from the group consisting of nitrogen, copper, phosphorous, arsenic, antimony, lithium, sodium and potassium.

13. (Original) The thin-film transistor of claim 4, where the channel region is fabricated from indium oxide.

14. (Original) The thin-film transistor of claim 13, where the impurity is a donor-type impurity which increases the positive fixed charge density within the portion of the channel region.

15. (Original) The thin-film transistor of claim 14, where the donor-type impurity is selected from the group consisting of silicon, germanium, tin, lead, fluorine and chlorine.

16. (Original) The thin-film transistor of claim 13, where the impurity is an acceptor-type impurity which increases the negative fixed charge density within the portion of the channel region.

17. (Original) The thin-film transistor of claim 16, where the acceptor-type impurity is selected from the group consisting of nitrogen, phosphorous, arsenic and antimony.

18. (Original) The thin-film transistor of claim 4, where the channel region is fabricated from tin oxide.

19. (Original) The thin-film transistor of claim 18, where the impurity is a donor-type impurity which increases the positive fixed charge density within the portion of the channel region.

20. (Original) The thin-film transistor of claim 19, where the donor-type impurity is selected from the group consisting of arsenic, antimony, bismuth, fluorine and chlorine.

21. (Original) The thin-film transistor of claim 18, where the impurity is an acceptor-type impurity which increases the negative fixed charge density within the portion of the channel region.

22. (Original) The thin-film transistor of claim 21, where the acceptor-type impurity is selected from the group consisting of boron, aluminum, gallium, indium, nitrogen, phosphorus, arsenic and antimony.

23. (Original) The thin-film transistor of claim 1, where the channel region comprises a controllable electrical pathway between the source electrode and drain electrode.

24. (Original) A thin-film transistor, comprising:

a source electrode;

a drain electrode;

a gate electrode;

a dielectric insulator; and

a deposited thin-film semiconductive channel,

where the electrodes, dielectric insulator and semiconductive channel are disposed so that the dielectric insulator insulates the gate electrode from the semiconductive channel and from the source electrode and drain electrode and where the semiconductive channel includes a first portion and a second portion, the first portion being doped differently than the second portion so as to achieve a desired variation in a gate threshold voltage required to turn on the thin-film transistor.

25. (Original) The thin-film transistor of claim 24, where the first portion of the semiconductive channel is positioned adjacent to the dielectric insulator and is closer to the dielectric insulator than the second portion.

26. (Currently Amended) ~~The thin-film transistor of claim 25,~~ **A thin-film transistor, comprising:**

a source electrode;

a drain electrode;

a gate electrode;

a dielectric insulator; and

a deposited thin-film semiconductive channel,

where the electrodes, dielectric insulator and semiconductive channel are disposed so that the dielectric insulator insulates the gate electrode from the semiconductive channel and from the source electrode and drain electrode and where the semiconductive channel includes a first portion and a second portion, the first portion being doped differently than the second portion so as

to achieve a desired variation in a gate threshold voltage required to turn on the thin-film transistor,

where the first portion of the semiconductive channel is positioned adjacent to the dielectric insulator and is closer to the dielectric insulator than the second portion, and

where the first portion of the semiconductive channel is doped with a donor-type impurity to increase positive fixed electrical charge density within the first portion relative to the second portion and thereby produce a negative shift in the gate threshold voltage.

27. (Original) The thin-film transistor of claim 26, where the semiconductive channel is fabricated from zinc oxide and where the donor-type impurity includes aluminum.

28. (Currently Amended) ~~The thin-film transistor of claim 25,~~ A thin-film transistor, comprising:

a source electrode;

a drain electrode;

a gate electrode;

a dielectric insulator; and

a deposited thin-film semiconductive channel,

where the electrodes, dielectric insulator and semiconductive channel are disposed so that the dielectric insulator insulates the gate electrode from the semiconductive channel and from the source electrode and drain electrode and where the semiconductive channel includes a first portion and a second portion, the first portion being doped differently than the second portion so as

to achieve a desired variation in a gate threshold voltage required to turn on the thin-film transistor,

where the first portion of the semiconductive channel is positioned adjacent to the dielectric insulator and is closer to the dielectric insulator than the second portion, and

where the first portion of the semiconductive channel is doped with an acceptor-type impurity to increase negative fixed electrical charge density within the first portion relative to the second portion and thereby produce a positive shift in the gate threshold voltage.

29. (Cancelled)

30. (Cancelled)

31. (Cancelled)

32. (Cancelled)

33. (Cancelled)

34. (Original) A thin-film transistor made by a process comprising:

forming a gate electrode, source electrode and drain electrode;

disposing a dielectric material so that the dielectric material separates the gate electrode from the source electrode and from the drain electrode;

disposing, via a thin-film process, a channel material so that the channel material is in contact with the dielectric material and so that the channel material separates the source electrode and drain electrode; and

doping a portion of the channel material so that fixed electrical charge density within such portion varies relative to undoped portions of the channel material.

35. (Original) The thin-film transistor made by the process of claim 34, where doping the portion of the channel material includes introducing a donor-type impurity into the portion to increase the positive fixed electrical charge density within the portion of the channel material.

36. (Original) The thin-film transistor made by the process of claim 34, where doping the portion of the channel material includes introducing an acceptor-type impurity into the portion to increase the negative fixed electrical charge density within the portion of the channel material.

37. (Original) The thin-film transistor made by the process of claim 34, where a thickness of the portion of the channel material is selected based on a desired gate threshold voltage of the thin-film transistor.

38. (Original) The thin-film transistor made by the process of claim 34, where doping the portion of the channel material is performed so that the portion of the channel material extends between the source electrode and the drain electrode.

39. (Original) A transistor, comprising:

a source electrode;

a drain electrode;

a gate electrode;

a channel region having a portion doped with an impurity to change the fixed charge density within the portion relative to a remainder of the channel region; and

a dielectric material electrically separating the gate electrode from the channel region, where the portion of the channel is disposed so as to extend between the source electrode and drain electrode along a boundary between the channel region and the dielectric material.

40. (Cancelled)

41. (Currently Amended) ~~The display of claim 40,~~ A display, comprising:

a plurality of display elements configured to operate collectively to display images, where each of the display elements includes a thin-film transistor configured to control light emitted by the display element, the thin-film transistor including:

a source electrode;

a drain electrode;

a gate electrode;

a deposited thin-film channel region having a portion doped with an impurity to change the fixed charge density within the portion relative to a remainder of the channel region and disposed between the source and drain electrode, where the channel region is a deposited layer fabricated from a binary oxide semiconductor material; and

a dielectric material electrically separating the gate electrode from the channel region.

42. (Original) The display of claim 41, where the channel region is fabricated from zinc oxide.

43. (Original) The display of claim 41, where the channel region is fabricated from tin oxide.

44. (Original) The display of claim 41, where the channel region is fabricated from indium oxide.

45. (Original) The display of claim 41, where the impurity is a donor-type impurity which increases the positive fixed charge density within the portion of the channel region.

46. (Currently Amended) The ~~thin-film transistor~~ **display** of claim 41, where the impurity is an acceptor-type impurity which increases the negative fixed charge density within the portion of the channel region.